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US

Claims

- Sub. AI
1. A sabot having a rearward end and a central longitudinal axis which is surrounded by a channel surface which is engageable with a projectile locatable within the channel, the sabot being made of a material having an anisotropic compressive strength distribution such that in individual radial planes which radiate outwards from the central longitudinal axis the sabot's maximum value of compressive strength is oriented in a first principal material direction and the sabot's minimum value of compressive strength is oriented in a second principal material direction, the material being oriented such that within individual radial planes the first principal material direction radiates from the central longitudinal axis towards the rearward end of the sabot.
 2. A sabot according to claim 1 wherein within a given radial plane the value of compressive Young's modulus in the first principal material direction divided by the shear modulus measured in that plane and taken along the first principal material direction is greater than 3.
 3. A sabot according to claim 2 wherein the Young's modulus to shear modulus ratio lies in the range 10 to 100.
 4. A sabot as claimed in claim 1 wherein the channel surface is provided with grooves with forwardly facing thrust transfer surfaces for engagement with a projectile and rearwardly facing return faces.

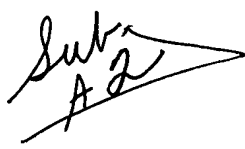
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5. A sabot as claimed in claim 1 wherein the material comprises a matrix containing a first array of substantially unidirectional fibres which radiate outwards at an acute angle X to the central longitudinal axis towards the rearward end of the sabot.

6. A sabot according to claim 5 wherein the channel surface is provided with grooves with forwardly facing thrust transfer surfaces for engagement with the projectile and rearwardly facing return faces wherein the thrust transfer surfaces lie substantially perpendicularly in the path of the first array fibres.

Sub A2  7. A sabot according to claim 5 wherein the material further comprises a second array of substantially unidirectional fibres which are substantially parallel to the sabot's central longitudinal axis.

8. A sabot according to claim 5 in which the channel surface is provided with grooves with forwardly facing thrust transfer surfaces for engagement with the projectile and rearwardly facing return faces wherein the return faces are disposed at substantially the same acute angle X to the central longitudinal axis as the first array fibres.

9. A sabot according to claim 4 wherein the thrust transfer surface and the return face of a groove meet substantially perpendicularly.

10. A sabot according to claim 4 wherein the thrust transfer surface and the return face of a groove meet at an acute angle of between 70° and 90° .

11. A sabot according to claim 5 wherein the angle X lies in the range 6° to 35° .

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12. A sabot according to claim 11 wherein the angle X lies in the range 10° to 25° .

13. A sabot as claimed in claim 1 which also comprises a rearwardly facing ramp.

14. A sabot as claimed in claim 1 comprising a plurality of petals each having a sector shaped cross section perpendicular to the longitudinal axis.

15. A sabot according to claim 5 comprising a plurality of petals each having a sector shaped cross section perpendicular to the longitudinal axis wherein the first array fibres in each individual petal are substantially mutually parallel.

16. A sabot according to claim 1 wherein the sabot comprises radially disposed laminations containing fibres, the fibres in each lamination being substantially mutually parallel.

Sub A3
17. A sabot having a rearward end and a central longitudinal axis surrounded by a channel surface which is engageable with a projectile locatable therein, the sabot comprising a plurality of longitudinal elements extending outwards on radial planes from the central longitudinal axis, the material of each element having about its plane an anisotropic compressive strength distribution and different principal material directions such that each element has its maximum value of compressive strength in a first principal material direction and its minimum value of compressive strength in a second principal material direction, material in each element being oriented such that the first principal material direction radiates from the channel towards the rearward end of the sabot.

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